

Remarks

Claims 1-10 were previously withdrawn from consideration. Claim 11 has been amended to incorporate elements of claim 15 and for clarity. Claim 15 has been cancelled. Claim 19 has been added. Thus, claims 11-14 and 16-19 are currently pending for consideration. Support for claim 19 can be found in Applicant's specification at, for example, page 10, lines 14-20 and Fig. 11. No new matter has been added by the amendments. Reconsideration is respectfully requested.

Rejections Under 35 U.S.C. § 102 and § 103

In the Office action, claims 11-14 and 17 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by Haver et al., previously applied. Claims 15-16, and 18 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Haver et al. as applied to claims 11-14 and 17 in view of Zdebel et al., previously applied. These rejections are respectfully traversed.

With regard to independent claim 11, Applicant submits that it incorporates elements of dependent claim 15. Therefore, the obviousness rejection previously applied to claim 15, will be discussed herewith with regard to claim 11.

In the Office action, with regard to claim 15, the Examiner states that Haver et al. fails to teach that the film stack is comprised of a first oxide layer, a first nitride layer, a first polysilicon layer, a second nitride layer, and an isolation oxide. Applicant agrees with the Examiner that Haver et al. fails to teach these elements, now recited in independent claim 11.

The Examiner continues that Zdebel et al. supplement the missing teachings of Haver et al. Applicant strongly disagrees. Haver et al. disclose a semiconductor device

having a pad oxide layer 10 formed on a substrate 12, a conducting layer 14, preferably polycrystalline silicon, formed on the pad oxide layer, and an insulating layer 16, preferably silicon oxide, formed on the conducting layer. Haver et al., col. 2, lines 5-20. Haver et al. fails to teach or suggest modification of these layers in any manner, let alone modification such that they include the first and second nitride layers as claimed in the present invention. Further, Zdebel fails to teach or suggest the addition of nitride layers to a stack comprising an oxide layer, a polysilicon layer, and a silicon oxide layer, as disclosed in Haver et al. Applicant's independent claim 11 recites, "forming a film stack residing on a topmost surface of a substrate, the film stack comprising a pad oxide layer disposed on said substrate, a first nitride layer disposed on said pad oxide layer, a first polysilicon layer disposed on said first nitride layer, a second nitride layer disposed on said first polysilicon layer, and an isolation oxide layer formed on said second nitride layer..." Though Zdebel et al. disclose first and second nitride layers in a film stack, it fails to teach or suggest modification of a film stack such as the one of Haver et al. Applicant submits that care must be taken to avoid hindsight reconstruction by using "the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the results of the claims in suit." Orthopedic Equipment Co. v. U.S., 217 USPQ 193,199 (Fed. Cir. 1983).

Therefore, as Haver et al., either alone or in combination with Zdebel et al. fails to teach or suggest claimed elements, Applicant submits that claim 11 is novel and non-obvious over the cited references.

Further, Haver et al. specifically disclose that an opening for an aperture 18 is formed in insulating layer 16 by patterning a photoresist layer (not shown) using conventional

photolithography. Haver et al., col. 2, lines 21-23. Thus it is a teaching of Haver et al. to use conventional photolithography. In contrast, Zdebel et al. were concerned with fabrication of "a structure having self aligned diffused junctions that are highly scaleable, not defined by photolithographic parameters and includes integrated contacts through a horizontal semiconductor layer." (Zdebel et al., col. 1, lines 46-50). Modifying Haver et al. such that photolithography were not used would change a principle of operation of Haver et al. The M.P.E.P. explicitly states that if "the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." M.P.E.P. § 2143.01, 2100-138 (August 2005) (citing In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)). Therefore, the cited references, for this additional reason fail to teach or suggest elements of claim 11.

As claims 12-14 and 16-18 depend from claim 11, Applicant submits that these claims are novel and non obvious for at least the same reasons provided above with regard to claim 11.

With regard to dependent claim 16, Haver et al. fail to teach or suggest an oxide spacer. Applicant's claim 16 recites, "[t]he method of claim 11 wherein the spacer is comprised of oxide." Though Zdebel et al. disclose an oxide spacer, there is no teaching or suggestion in Zdebel et al. or Haver et al. to modify Haver et al. such that it includes an oxide spacer instead of its polysilicon spacer 34 (Haver et al., col. 3, lines 63-67). In order to determine whether there is a suggestion or motivation to modify or combine the cited references, a showing must be made why "one of ordinary skill in the art would have been motivated to selected the references and to combine them to render the claimed invention

obvious." In re Rouffet, 47 USPQ 2d. 1453, 1459 (Fed. Cir. 1998)). Such a showing has not been made. The Office action states:

[I]t would have been obvious to a person of ordinary skill in the requisite art at the time the invention was made [to] form [] an emitter base by forming the spacer [] made of oxide... because the process would fabricate a structure having self-aligned diffused junctions that allows for semiconductor devices having increased speed, and the junction area precisely controlled and also allow for increased scalability and sub-micrometer dimensions as well as integrated contact through a horizontal semiconductor layer (see col. 1, lines 52+)."

However, Applicant submits that there is no teaching or suggestion that an oxide spacer would itself result in such advantages. Therefore, for at least this reason, the cited references fail to teach or suggest claim 16.

Claim 19

Applicant submits that the cited references fail to teach or suggest elements of claim 19. In particular, claim 19 recites, "depositing a nitride dielectric separation layer directly over said polycrystalline semiconductor plug and on an uppermost surface of said film stack..." In contrast, the cited Haver et al. reference discloses deposition of a composite dielectric layer comprising a nitride layer 32 and an oxide layer 30 where the nitride layer 32 is deposited directly over oxide layer 30, not plug 28. Haver et al., col. 3, lines 57-60; col. 4 lines 53-63. As seen in Fig. 8 of Haver et al., nitride layer 32 is disposed directly on oxide layer 30 and oxide layer 30 is deposited directly over the plug. In contrast, in the claimed invention, nitride layer 1101 is deposited directly over the polycrystalline semiconductor plug, in addition to being deposited on an uppermost surface of the film stack.

Zbedel et al. fail to supplement the missing teachings of Haver et al.

Therefore, for at least these reasons, claim 19 is novel and non obvious over the cited references.

Conclusion

For at least the reasons submitted above, Applicant submits that claims 11-14 and 16-19 are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested.

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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